

What is claimed is:

1. An apparatus comprising:
  - (a) a deposition chamber, wherein the deposition chamber is divided into two or more deposition regions that are integrally connected to one another; and
  - (b) a wafer support disposed in the deposition chamber, wherein the wafer support is moveable between the two or more interconnected deposition regions.
2. The apparatus of claim 1 wherein a piston coupled to the wafer support moves the wafer support between the two or more interconnected deposition regions.
3. The apparatus of claim 1, further comprising a heater wherein the heater controls the temperature within each of the two or more deposition regions of the deposition chamber.
4. The apparatus of claim 1 wherein the wafer support is an e-chuck.
5. The apparatus of claim 1 wherein each of the two or more deposition regions are integrally connected to another of the two or more deposition regions with an aperture.
6. The apparatus of claim 5 wherein the aperture is sealed to minimize the intermixing of deposition gases between the two or more deposition regions.
7. The apparatus of claim 1, further comprising a gas supply panel coupled to the deposition chamber.

8. The apparatus of claim 7 wherein the gas supply panel includes one or more gas supply lines which couple the gas supply panel to the deposition chamber.

9. The apparatus of claim 1, further comprising a gas exhaust pump coupled to the deposition chamber.

10. A method of depositing a material layer on a substrate comprising:

(a) positioning a substrate on a wafer support in a deposition chamber comprising a first and second deposition region, wherein the first and second deposition regions are integrally connected to one another, and wherein the wafer support is movable between the first and second deposition regions;

(b) introducing a first deposition gas into the first deposition region and a second deposition gas into the second deposition region;

(c) moving the wafer support with the substrate thereon into the first deposition region wherein a first monolayer of the first deposition gas is chemisorbed onto the surface of the substrate;

(d) moving the wafer support with the substrate thereon into the second deposition region wherein a first monolayer of the second deposition gas is chemisorbed on the first monolayer of the first deposition gas; and

(e) repeating steps (c) and (d) until a material layer having a desired thickness is achieved.

11. A computer storage medium containing a software routine that when executed causes a general purpose computer to control a process chamber using a layer deposition method, comprising:

(a) positioning a substrate on a wafer support in a deposition chamber comprising a first and second deposition region, wherein the first and second deposition regions are integrally connected to one another, and wherein the wafer support is movable between the first and second deposition regions;

(b) introducing a first deposition gas into the first deposition region and a second deposition gas into the second deposition region;

(c) moving the wafer support with the substrate thereon into the first deposition region wherein a first monolayer of the first deposition gas is chemisorbed onto the surface of the substrate;

(d) moving the wafer support with the substrate thereon into the second deposition region wherein a first monolayer of the second deposition gas is chemisorbed on the first monolayer of the first deposition gas; and

(e) repeating steps (c) and (d) until a material layer having a desired thickness is achieved.